REMARKS

Claims 1-7 are pending in this application. Claims 1-6 were rejected in the December 26, 2008 Office Action (the "Action"). Claim 7 has been withdrawn as being directed to a non-elected invention. Independent claim 1 is amended herein to recite "$1.02<x<1.5$" in formula (1). Support for this recitation may be found *e.g.*, in Examples 4, 6, and 7 (see paragraphs [0094], [0103] and [0103] in which "x" is 1.02) of the specification, and at page 8, line 12 (paragraph [0023]) of the specification.

Reconsideration and allowance of the rejected claims are respectfully requested in view of the following remarks.

Amendment to the Specification

Paragraph [0085] of the specification is amended herein to correct a clear typographical error in the formula of Example 2. Support for this amendment may be found *e.g.*, at Table 2 on page 40 of the specification. No new matter is believed to be added by this amendment.

Restriction Requirement/Election of Species

On Page 2 of the Action, the Examiner acknowledged Applicants' election of Group 1: claims 1-6, and the election of species where A is La and B is Fe. Applicants hereby affirm this election, subject to the partial withdrawal of the election requirement. In particular, Applicants acknowledge that the Examiner partially withdrew the species election and that the examined

species is an oxide where A is La with no A' or A'' and B and B' are as recited in the claims. (See page 2 of the Action).

Applicants reserve the right to rejoin additional species and to pursue the subject matter of Group II: claim 7, and any other embodiments of this application, in this application and/or one or more continuation and/or divisional applications.

Claim Rejections Under 35 U.S.C. § 112

Claims 1-6 were rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. As indicated on page 3 of the Action, claims 1 and 2 recite a value "δ" which is meant to represent an oxygen excess. Page 3 of the Action further questions whether the excess is only optional, or if the excess must exist in some form.

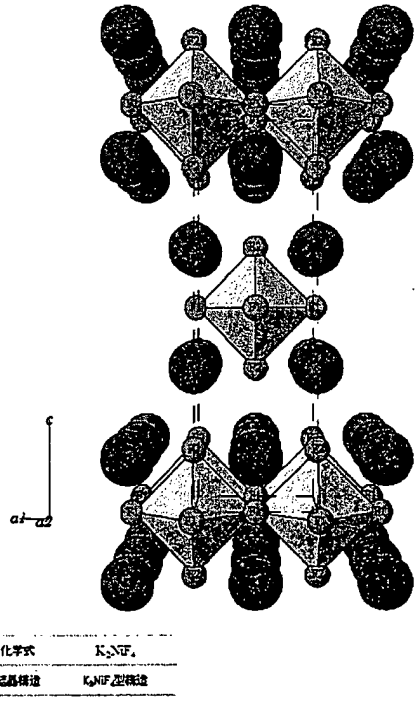
As indicated on page 9, paragraph [0028] of the application **"'δ'... represents an excessive atomic ratio of oxygen atom caused by allowing the constitutional elements of the A site to be excessive to the stoichiometric ratio of a perovskite-type composite oxide of A:B:O = 1:1:3."** Because x>1 in claim 1 (in particular, x is now defined in claim 1 as "1.02<x<1.5,") and (a+b)>1 in claim 2, then all embodiments of the claims allow the constitutional elements of the A site to be excessive of the 1:1:3 ratio. Therefore, all embodiments of the claims would have an oxygen excess and this component is not optional.

Claim Rejections Under 35 U.S.C. § 102

Claims 1 and 4-6 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Guilhamue, et al. ("Palladium-substituted lanthanum cuprates...", 1996). For at least the following reasons, Applicants respectfully traverse this rejection, and request the withdrawal thereof.

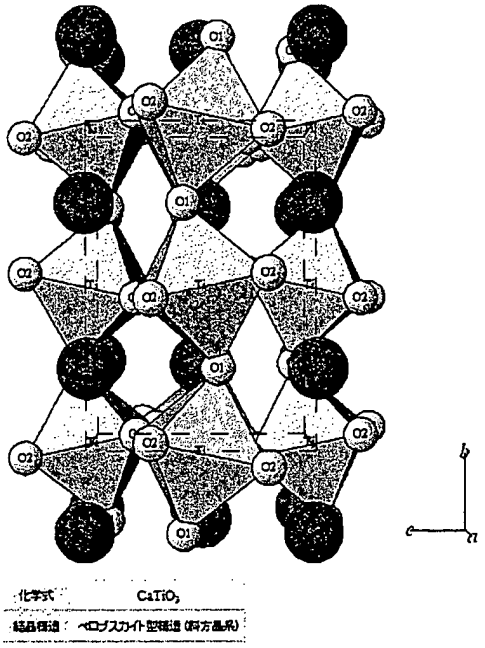
As indicated on page 326 of the Guilhamue reference ("Introduction"), the compounds disclosed therein (lanthanum cuprates, La_2CuO_4) have a K_2NiF_4-type structure consisting of alternating layers of ABO_3 perovskite and AO salt. Thus, according to the reference, the cited palladium-substituted lanthanum cuprate would include $LaCu_{1-x}Pd_xO_3$, and an LaO salt. A K_2NiF_4-type structure consisting of alternating layers of ABO_3 perovskite and AO salt, has the following structure.

$K2NiF_4$ .A_2BO_4)



In contrast, a perovskite-type composite oxide structure is as shown below:

$CaTiO_3$ (ABO_3.



As is clear from the above depictions, the reference compound, $La_2Cu_{1-x}Pd_xO_4$, is not a "perovskite-type composite oxide," as required by the present claims. Perovskite-type composite oxide structures are clearly quite different from a K_2NiF_4-type structure. Accordingly, Applicants respectfully submit that for at least this reason, the reference does not anticipate the present claims.

Applicants also submit that the reference compound La_2CuO_4 does not teach the present claims because it does not teach or suggest the compound of formula (1) in which "$1.02<x<1.5$."

In particular, in the reference compound x is not less than 1.5. Applicants further submit that the ABO_3 portion (*i.e.*, $LaCu_{1-x}Pd_xO_3$) of the A_2BO_4 structure also does not teach or suggest the compound of formula (1) in which **$1.02<x<1.5$**. $LaCu_{1-x}Pd_xO_3$ does not teach or suggest the compounds of the present claims, because in $LaCu_{1-x}Pd_xO_3$, x is not greater than 1.02, and there is no oxygen excess, as required by the present claims. Thus, for at least this reason as well, Applicants submit that the present claims are not anticipated by the cited reference and withdrawal of the rejection is respectfully requested.

Claim Rejections Under 35 U.S.C. § 103

Claims 1-6 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Petit, et al., U.S. Patent No. 5,477,705 ("Petit '705"). For the following reasons, Applicants respectfully traverse this rejection.

In making this rejection, the Examiner noted that the range given for x of >1 "appears to be in error and a more likely range is 0 to 1". To correct the record, Applicants respectfully submit that the Examiner's note is incorrect and x is greater than 1, as set forth in the claims (claim 1 now defines x as being "1.02<x<1.5") and throughout the specification.

As indicated above, perovskite-type composite oxide structures generally have the A:B:O stoichiometric ratio of 1:1:3. Consistent with this ratio, all examples of the cited reference have this stoichiometric ratio, and teach that La (in the A position) has a corresponding "x" value of **1**, not 0.999 or 1.001. (See *e.g.*, Examples 1-4 at columns 3 and 4). In this regard, Applicants note

that although Petit '705 discloses $0<x<10$, it appears that the reference range is in error, as there does not appear to be any enablement in the reference for such a range.

Applicants respectfully disagree with the Examiner's stated position on page 5 of the Action that it is allegedly "plausible that the value of 1 in [Petit '705] includes values below and above it, such as 0.999 and 1.001." Petit '705 appears to teach and only provide enablement for the generally accepted stoichiometric ratio in which x is 1 and only 1, not more.

Nor do Applicants agree with the Examiner's position that there is allegedly "no clear patentable difference between a value of 1 (such as in the examples in Petit '705) and greater than 1." Because the present claims require a compound outside the general stoichiometric ratio, and provide that x is greater than 1 ("$1.02<x<1.5$" in claim 1 and $1<(a+b)$ in claim 2), an excess of oxygen is required in the presently claimed embodiments.

Additionally, Applicants respectfully submit that Petit '705 is consistent throughout its specification in its structures being of the formula "ABO_3". There is no teaching or suggestion in Petit '705 of $ABO_{3+\delta}$, that is, there is no teach or suggestion of the present oxygen excess. As discussed above, 'δ' in the present claims is not optional, contrary to the Examiner's assertion. Accordingly, Applicants respectfully submit that the present claims are not taught or suggested by Petit '705 and the claims are therefore unobvious.

The Action further alleges that "one of ordinary skill in the art would appreciate that excess oxygen may be needed to create a stable compound." Applicants respectfully disagree however, noting that because the reference compounds all teach an x value of 1, there would be no need to have an excess of oxygen in such compounds.

Applicants also respectfully submit that there is no "touching range" as suggested by the Examiner. The only enabled embodiment in the Petit '705 reference is of x=1, which does not overlap with the present embodiments in which x is more than 1.

As further evidence of the unobviousness of x being greater than 1, as presently required, Applicants note that the Examiner herself assumed that the recitation of "1<x" was in error and that Applicants more likely meant to recite "0<x<1." Accordingly, the Examiner did not expect that the claims would recite a value of x>1, even in the face of it being written as such consistently throughout the application.

At least because the reference does not teach or suggest a value of "1.02<x<1.5" or "1<(a+b)≤1.3", Applicants respectfully submit that the present claims are unobvious over the Petit '705 reference. Further, Applicants submit that the Petit '705 reference does not teach or suggest an excess of oxygen.

Thus, for at least the above reasons, Applicants respectfully request reconsideration and withdrawal of this aspect of the obviousness rejection.

Claims 2 and 3 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Tanaka et al. (WO 2004/005194; U.S. Patent No. 7,381,394 used as a translation) ("WO '194"). For at least the following reasons, Applicants respectfully traverse this rejection as well, and request the withdrawal thereof.

As acknowledged on page 6 of the Action, WO '194 does not specifically teach a value of greater than 1 for the claimed "A" compounds, which is required by the present claims (see

formula (2) of the present application where the A component is $A_aA'_bA''_c$, where $1<(a+b)\leq 1.3)$. In contrast, WO '194 teaches that the "A" component (represented in formula (2) of WO '194 as "A" and "A' ", in particular, WO '194 teaches $A_{1-x}A'_x$) is present in an amount of (1-x) + x, which equals **1**, not 0.999 or 1.001. As with the Petit '705 reference, the WO '194 reference is consistent with the A:B:O stoichiometric ratio of 1:1:3, in that it teaches that the element(s) in the "A" position have a total corresponding "x" or "a+b+c" value of **1**. See also Examples 1-15). Accordingly, Applicants respectfully disagree with the Examiner's position that 1 may contain a value slightly higher than 1. If "1" was actually more than "1", the stoichiometric ratio would be outside the general stoichiometric ratio of 1:1:3, and an excess of oxygen would be required, which is also not taught or suggested by the reference.

In the present claims, because the stoichiometric ratio is not the general ratio for perovskite-type compounds and is different in $(a+b)>1$, excess oxygen is required. Thus, for at least this reason, Applicants respectfully submit that the presently recited additional amount of the A component in the present claims is an unobvious difference over the reference.

Applicants note that the Examiner's argument on page 6 of the Action is premised on the incorrect interpretation that the value of "δ" is an optional amount. However, as indicated above, 'δ' is not optional. Applicants respectfully submit that here is no teaching or suggestion in WO '194 of the presently required excess of oxygen. The Action again alleges that "one of ordinary skill in the art would appreciate that excess oxygen may be needed to create a stable compound." No support is provided for this assertion. Applicants again respectfully disagree with this

assumption, noting that because the reference compounds all teach an "(1-x) + x" (corresponding to "a+b+c") value of 1, there would be no need to have an excess of oxygen in such compounds.

Thus, for at least the above reasons, Applicants respectfully request reconsideration and withdrawal of this aspect of the obviousness rejection.

Applicants also respectfully request withdrawal of all aspects of the obviousness rejections over both cited references in view of the superior results demonstrated in the present specification. For example, Table 1 demonstrates that the Comparative Examples (having an "x" or (a+b+c) value of 1 and no excess of Oxygen) have a lower rate of solid solution than the Example compounds having an "x" or "(a+b+c)" value greater than 1, and an excess of Oxygen. Table 2 shows that 50% purifying temperatures of the Comparative Examples are higher than those of the Examples. Table 3 further demonstrates lower conversion rates of the Comparative Examples than those of the Examples. Thus, in view of the superior results achieved by the present perovskite-type composite oxides as compared to Comparative Examples having a 1:1:3 stoichiometric ratio, Applicants respectfully submit that the present claims are unobvious over the cited references.

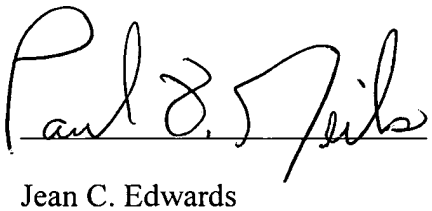
Conclusion

In view of the above, Applicants respectfully request reconsideration and withdrawal of all the present rejections in their entirety. Applicants submit that the claims should be in form for allowance and such action is hereby solicited.

If the Examiner believes that there is any issue which could be resolved by a telephone or personal interview, the Examiner is respectfully requested to contact the undersigned attorney at the telephone number listed below.

Applicants hereby petition for any extension of time which may be required to maintain the pendency of this case, and any required fee for such an extension is to be charged to Deposit Account No. 50-0951.

Respectfully submitted,



Jean C. Edwards
Registration No. 41,728
Paul F. Neils
Registration No. 33,102

(57362)
AKERMAN SENTERFITT
801 Pennsylvania Avenue N.W.
Suite 600
Washington, D.C. 20004
Telephone: 202-824-1719
Facsimile: 202-824-1791
Date: March 24, 2009